

# AIR UNIVERSITY



## The Development of Airpower

*Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the changes occur.*

—Giulio Douhet

### The Beginnings

**1. Land and naval warfare expertise were sufficient until the invention of the airplane.**

In 1776, there were only the Army and the Navy . . . soldier generals and sailor admirals.

**2. Operations in the aerospace medium are sufficiently complex and unique to require a new and separate competence.**

The Army and Navy had cultivated and developed a specialized competence in their associated mediums of land and sea.

### World War I

**1. At the outset of World War I (WW I), airpower was almost wholly a subsidiary component of land and sea power.**

Aircraft were used initially and primarily in an observation role.

Efforts to shoot down observation aircraft led to air-to-air combat and the emergence of pursuit (fighter) aviation.

**2. By the end of WW I, the concept of airpower as an independent force in warfare was beginning to emerge.**

### **Early Advocates**

**1. After WWI, many airpower theorists attempted to explain the potential of airpower.**

- Advocates like Douhet, Trenchard, and Mitchell stressed independent air action as an alternative to bloody ground warfare.
- Early advocates saw the potential of airpower to bypass fielded armies and strike directly at the enemy's vital centers.

**2. During the 1930s, airpower theory was further advanced, especially by the Air Corps Tactical School.**

- The school defined the idea that industrialized nations are held together by a complex and fragile “web” of vital industrial, economic, and social centers.  
*Aerial bombardment of the enemy's vital centers can paralyze a modern nation by destroying its ability to fight.*
- The school defined the idea that center of gravity (COG) analysis is the key to looking at the enemy as a system of systems.
- The period between World War I and World War II saw the rapid development of strategic bombardment theory.  
*Guilio Douhet, an Italian army officer, was the first to actually document airpower theory.*
- Brig Gen William “Billy” Mitchell helped to popularize airpower and point out its potential with his books *Our Air Force, the Keystone of National Defense* and *Winged Defense the Development and Possibilities of Modern Air Power—Economic and Military*.

**3. Some theorists saw in an independent bombing strategy the basis for establishing independent air forces.**

- Many believed that airpower offered an alternative to the static trench warfare of WW I and the expense of armies and navies. Influenced by the horrors of trench warfare, many airpower proponents saw the means to achieve victory in future wars quickly and decisively.
- Strategic bombing advocates based their arguments more on theory than on the limited experience afforded by airpower employment in WW I.
- Following World War I, the potential of airpower was demonstrated with such aerial achievements as the tests conducted by General Mitchell in which airplanes sank naval war ships.

## **World War II**

**1. World War II experience revealed the requirement for control of the air.**

- Emerging from World War II was the concept of air superiority and control of the air. Air superiority enabled friendly forces to use the air while preventing the enemy from using it to impede friendly operations.

**2. The experiences of WW II demonstrated the importance of controlling the air as a prelude to ground operations.**

- Control of the air was crucial to the Allied landings in Europe and the subsequent advance of surface armies into Germany as well as in providing close air support to surface forces in both the European and Pacific Theaters.

### **3. Airpower was shown to be most effective when used offensively.**

- Allied use of tactical air in North Africa and France, and the Luftwaffe's Blitzkrieg campaigns of 1940 and 1941 showed the value of offensive airpower.

Massed bomber raids on Nazi Germany further pointed up the value of offensive airpower.

In the Pacific, the Japanese won striking gains through skillful employment of offensive airpower, such as their surprise attack on Pearl Harbor.

### **4. The importance of centralized control was learned and relearned during World War II.**

- WWII experience showed that airpower fared best when it was centrally controlled by airmen.

Unity of command of airpower, originating in the final campaigns of World War I, was demonstrated in World War II.

### **5. Following World War II, Air Force leaders realized the need for a comprehensive capability to wage war at all levels.**

“There has been a tendency to overemphasize long range bombardment, and to ignore the versatile application of air power. Especially misleading is the distinction between strategic and tactical air forces . . . that distinction is not valid in describing the use of air power as a whole, day after day.”

—Gen Carl “Tooe” Spaatz

- Strategic bombardment wasn't enough.
- Interdiction, close air support, and independent air operations were all vital elements of the Allied victory.

**6. The Air Force embraced a more comprehensive air doctrine, and in 1943, FM 100-20, *Command and Employment of Air Power*, described the tasks of an air force as:**

- Destroy hostile air forces.
- Destroy hostile air bases.
- Operate against hostile land and sea forces.
- Wage offensive air warfare against the sources of enemy military and economic strength.
- Operate as part of task forces in the conduct of military operations.
- Operate in conjunction with or in lieu of naval forces.

**7. The ability of airpower to operate independently in achieving national objectives was demonstrated in 1948 with the Berlin Airlift.**

*Airpower Diplomacy: Berlin Airlift, June 1948–September 1949*

	American	British	Total
<b>Sorties</b>	<b>189,963</b>	<b>87,606</b>	<b>277,569</b>
<b>Tonnage</b>	<b>1.8 million</b>	<b>.54 million</b>	<b>2.3 million</b>

“For the first time in history, the United States is employing its Air Force as a diplomatic weapon. . . . The first chapters of the ‘role of air power in diplomacy’ are being written here.”

—Maj Gen William Tunner  
Commander Airlift Task Force

## Postwar Period—The Nuclear Era

**1. The dawn of the nuclear age and the cold war opened a new chapter in the development of airpower.**

- Airpower in the “Atomic Age” became associated almost exclusively with long-range, nuclear airpower.
- However, long-range nuclear airpower was not pertinent to the limited war in Korea or the conflict in Southeast Asia that was to follow.

The US entered the Korean War with a force structure and doctrine heavily focused on global nuclear conflict.

In Korea the air effort was divided with the mistaken belief that airpower could then more promptly react to the immediate needs of the land battle.

**2. Korea and Vietnam point out the futility of air campaigns conducted without unity of command or clear objectives.**

In Vietnam the US air effort amounted to four separate air forces (controlled by the Army, Navy, Marine Corps, and Air Force) waging five separate air wars (South Vietnam, North Vietnam, northern Laos, southern Laos, and Cambodia).

- Airpower in Korea and Vietnam suffered from a lack of coordinated command and control.
- Poorly defined objectives and the lack of centralized control severely constrained the employment of airpower.

**3. But there is another story as well. It is no accident that the Air Force had 38 aces in Korea.**

Thirty-eight USAF aces in Korea.

- The high kill ratios were obtained because the Air Force had focused on airpower—the right equipment and the right training.

Nearly 800 MiG-15s downed versus 78 US F-86 Sabres lost in aerial combat.

- A ten-to-one air-to-air kill ratio is not an accident, but the result of the Air Force focusing on its responsibilities to the nation.

**4. After nearly a decade of focus on strategic nuclear warfare, the results in Vietnam did not match those achieved in Korea.**

Three USAF aces in Vietnam.

- US kill ratios were reduced to about two to one.
- The focus on the nuclear end of the war-fighting spectrum had reduced the capability of the Air Force to fight across the range of military options.

129 MiGs downed versus 67 US aircraft lost in aerial combat.

**5. Institutionally, the Air Force arrived at several key conclusions in the wake of Vietnam.**

- Air strategy must be linked closely to clear objectives and national policy.
- Weapons must be appropriate for the war at hand.
- Sending “signals” by gradually applying airpower failed.
- Airpower has limits—not all enemy strategies are vulnerable to rapid defeat with airpower.
- Precision weapons make us more efficient and effective, thus placing fewer lives at risk.

**6. The attempt to compensate for the predominant emphasis on nuclear war fighting caused a significant focus on tactical airpower in direct support of ground forces.**

Little regard was given to independent air action beyond strategic nuclear warfare.

The Army doctrine of AirLand Battle became a focus of the Air Force.

## Contemporary Airpower: Operation Desert Storm

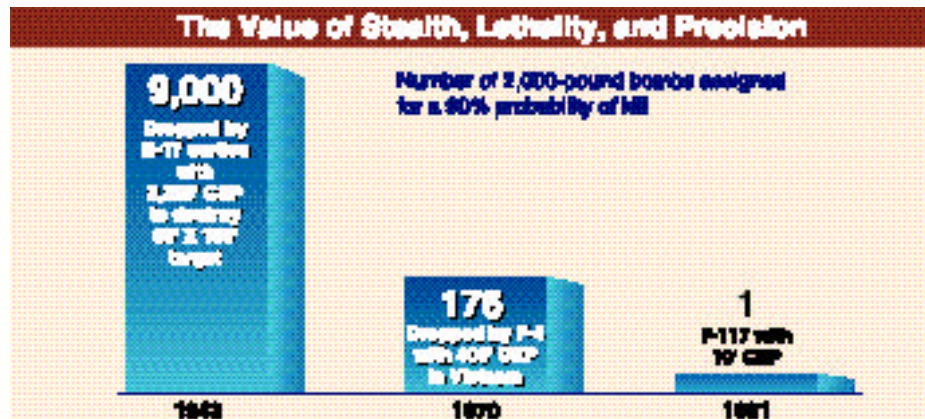
### 1. In the Persian Gulf War, airpower showed it can be decisive when properly applied.

- Coalition air forces gained complete air superiority, isolated Saddam Hussein from his armies, and destroyed key targets.
- The extraordinary effectiveness of airpower contributed significantly to shortening the land war against Iraqi forces.

### 2. Operation Desert Storm was unlike the air war in Vietnam.

- Air and space forces were employed as an integrated whole to achieve strategic and operational objectives that influenced the successful outcome of the conflict.
- Technology was employed to realize many of the once exaggerated claims of airmen.

For the most part, Coalition airpower was applied against strategic, operational, and tactical targets by a single air commander according to the commander in chief's objectives.



### 3. The Gulf War featured several “firsts” in the employment of airpower—many of which validated the theories of the early airpower advocates.



- The Gulf War was the first large-scale strategic use of conventional airpower since World War II.
- The Gulf War was the first time “centralized control and decentralized execution” of airpower, under the command of an airman, was achieved.
- The Gulf War was the first opportunity to demonstrate an airman’s ability to leverage theater ranging awareness in combat.

**4. Several fundamental “truths” were validated during the Gulf War.**

- Land, sea, and air forces are coequal and can all be decisive.
- Airpower must be controlled by an expert airman with a theater perspective.
- Air superiority normally should be the theater commander’s first priority.
- Airpower requires a comprehensive doctrine and the capability to employ it across the range of military operations in both independent and supporting roles.
- Stealth and precision are force multipliers that allow parallel operations against multiple centers of gravity.

“I’ve said this many times,  
and I’ll say it again, airpower  
was decisive in this war.”

—Gen Colin Powell

## Beyond Desert Storm

**1. Airpower continues to show its potential as an independent force and as a critical member of the joint team in achieving national aims in regional conflict.**

“Deliberate Force was absolutely crucial in bringing the parties to the table. . . . NATO airpower has brought us a peace accord. . . . Now NATO airpower and ground power will be responsible for ensuring compliance.”

—Secretary of Defense  
William Perry

- Operation Deliberate Force demonstrated the coercive power of air forces with concentrated attacks on the Bosnia Serb army.
- Airpower was employed to influence international actions.